INDIANA MICHIGAN POWER
A unit of American Electric Power

Indiana Michigan Power
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
AEP.com

June 24, 2005

AEP:NRC:2573-26
10 CFR 50.73

Docket No. 50-315

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Unit 1
LICENSEE EVENT REPORT (LER) 315/2005-001-00,
REACTOR TRIP FOLLOWING INTERMEDIATE RANGE HIGH FLUX SIGNAL

In accordance with 10 CFR 50.73, "Licensee Event Report System," the following report is submitted:

LER 315/2005-001: "Reactor Trip Following Intermediate Range High Flux Signal"

Attachment 1 identifies the commitments contained in this submittal.

Should you have any questions regarding this correspondence, please contact Mr. Michael K. Scarpello, Regulatory Affairs Supervisor, at (269) 466-2649.

Sincerely,

Joseph N. Jensen
Site Vice President

RAJ/jen

Attachments

IE22

c: J. L. Caldwell – NRC Region III
K. D. Curry – AEP Ft. Wayne
J. T. King – MPSC
C. F. Lyon – NRC Washington DC
MDEQ – WHMD/HWRPS
NRC Resident Inspector
Records Center - INPO

ATTACHMENT 1 TO AEP:NRC:2573-26

REGULATORY COMMITMENTS

The following table identifies those actions committed to by Indiana Michigan Power Company (I&M) in this document. Any other actions discussed in this submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Date
Develop preventative maintenance tasks for periodic replacement of nuclear instrument bistable relay drivers (CRA 05116001-05).	September 23, 2005

NRC Form 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES 6/30/2007

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE

Reactor Trip Following Intermediate Range High Flux Signal

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	26	05	2005	-- 001 --	00	06	24	05	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE

Mode 1

10. POWER LEVEL

008

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER Specify In Abstract below or In NRC Form 366A
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
D.C. Cook, Supervisor of Regulatory Affairs, Michael Scarpello	(269) 466-2649

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	JD	70	West.	N					

14. SUPPLEMENTAL REPORT EXPECTED			15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (If Yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

At 0002 hours on April 26, 2005, the Donald C. Cook Nuclear Plant Unit 1 reactor automatically tripped while at 8% reactor power. Preparations were being made to synchronize the main generator with the offsite electrical power grid. The post-trip investigation determined that the trip was caused by an intermediate range high flux reactor trip signal. The intermediate range high flux reactor trip occurred below the reactor protection system actuation normally set at 22% reactor power. This reactor trip has a one-of-two channel trip logic. The trip is interlocked to be active below 10% reactor power. It was determined the cause was a spurious lowering of the trip setpoint due to age-related degradation of the level adjust potentiometer in the circuitry of 1-NRI-35, Nuclear Instrumentation Channel 1 Intermediate Range Neutron Flux Detector. The affected bistable and relay driver assembly, 1-NRI-35-NC35F, for the intermediate range channel 1-NRI-35, was replaced. Additionally, preventive maintenance tasks for periodic replacement of nuclear instrument bistable relay drivers will be developed.

All plant systems functioned normally following the reactor trip. The auxiliary feedwater system actuated and performed as expected during this event. This event was reported under event notification system number 41639 per 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A), as a valid reactor trip and actuation of the auxiliary feedwater system, respectively.

This LER is being reported per requirements of 10 CFR 50.73(a)(2)(iv)(A).

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form (366A)*

Conditions Prior to Event

Donald C. Cook Nuclear Plant (CNP) Unit 1 was at 8% reactor power and stable.

Description of Event

At 0002 hours on April 26, 2005, CNP Unit 1 reactor automatically tripped while at 8% reactor power. Preparations were being made to synchronize the main generator with the offsite electrical power grid. The post-trip investigation determined that the trip was caused by an intermediate range high flux reactor trip signal. The intermediate range high flux reactor trip occurred below the reactor protection system actuation normally set at 22% reactor power. This reactor trip has a one-of-two channel trip logic. The trip is interlocked to be active below 10% reactor power. It was determined the cause was a spurious lowering of the trip setpoint due to age related degradation of the level adjust potentiometer in the circuitry of 1-NRI-35-DWR, Nuclear Instrumentation Channel 1 Intermediate Range Neutron Flux Detector Drawer [JD].

The automatic plant trip at low power functioned as expected. The auxiliary feedwater [BA] system actuated and operated as expected. Operators took procedurally directed actions and responded to the transient in an appropriate and timely manner, resulting in a safe and stable plant configuration. Automatic post-trip features functioned dependably with the exception of 1-FMO-242, West Motor Operated Auxiliary Feedwater Pump Supply to Steam Generator OME4-4 Control Valve, not throttling closed following the trip. An engineering evaluation concluded this was an expected response under the circumstance, and no equipment failure was indicated.

This event was reported under event notification system number 41639 per 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A), as a valid reactor trip and actuation of the auxiliary feedwater system, respectively.

This LER is being reported per requirements of 10 CFR 50.73(a)(2)(iv)(A).

Cause of Event

The cause of the spurious reactor trip signal was determined to be drying out of the lubricant internal to the level adjust potentiometer (R4E) associated with 1-NRI-35-NC35F, Nuclear Instrumentation Intermediate Range Channel 1 High Neutron Flux Bistable, due to the age of the component and environmental conditions.

A recently completed single point vulnerability (SPV) study was not chartered to include conditions at less than 100% power operation. This was considered to be a contributing cause to this event.

The level adjust potentiometers, at the root of this event, are not a critical component above 10% power. The coincidence logic of the source and intermediate range instrumentation is a one-out-of-two trip logic, vice a two-out-of-four trip logic with the power range instrumentation. CNP will evaluate the need to expand the SPV study to operations less than 100% power.

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17. NARRATIVE *(If more space is required, use additional copies of NRC Form (366A)*

Analysis of Event

An assessment of this event was performed and it was determined that this event was bounded by the existing accident analysis associated with unplanned reactor trips with the main condenser available. This assessment is based on the following considerations:

1. The automatic plant trip at low power, caused by Intermediate Range nuclear instrument 1-NRI-35, functioned as expected.

2. The reactor trip was inadvertent. The intermediate range nuclear instrument, 1-NRI-35, normally has a trip setpoint of 22%. In this event, a reactor trip was initiated at 7-8% power. This does not contribute to the increased likelihood of any initiators, other than transients that result in or from a reactor trip.

3. Neither the failure of the intermediate range nuclear instrument, nor the subsequent unit trip, degraded any system used to mitigate core damage, assure containment integrity, or maintain defense-in-depth and safety margins.

4. The low initial power level removes any risk contribution due to Anticipated Transient Without Scram (ATWS) initiators at 40% power or above. This initiator contributes about 90% of the ATWS core damage contribution, and corresponds to about 1% of the overall CDF.

Conclusion:

The significance associated with this event is non-risk significant. Additionally, there were no radiological or industrial safety risks created or affected by the event.

Corrective Actions

Immediate Corrective Actions:

Replaced the affected bistable and relay driver assembly, 1-NRI-35-NC35F, for the intermediate range channel 1-NRI-35 (JO 05116001, Activity 01).

High Level Trip bistables for the other Unit 1 nuclear instrumentation detector channels, 1-NRI-31, 1-NRI-32 and 1-NRI-36, were inspected. The potentiometers were manipulated to confirm they operated correctly (JO 05116001, Activity -02, -03, and -04).

Action to Address Extent of Condition:

CNP will evaluate expanding the single point vulnerability study to include operations less than 100% power. (CR 05159006, due7/9/05).

Corrective Action to Prevent Recurrence:

Develop preventive maintenance tasks for periodic replacement of nuclear instrument bistable relay drivers (CRA 05116001-05, due 9/23/05).

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Previous Similar Events

None